

[Fig. 1]

1: vibration detection

2: CPU

3: current amplifier

4: base drive circuit

A1: command of position, speed, etc.

[Fig. 2]

11: speed control

A1: speed command

[Fig. 3]

A1: gain

A2: torque or speed

A3: time

[Fig. 4]

A1: movable range

[Fig. 5]

52: speed control

A1: position command

A2: load

[Fig. 6]

(i)

A1: command

A2: speed command

A3: speed

A4: torque

A5: vibration level during stopping

A6: time

(ii)

A4: torque

A6: time

A7: maximum amplitude

(iii)

A1: command

A2: speed command

A3: speed

A4: torque

A6: time

A8: gain

[Fig. 7]

A1: vibration during stopping

A2: Amplitude of torque

A3: speed loop gain

[Fig. 8]

1: detect amplitude level of torque during stopping  
2: limited gain?  
3: perform running such as acceleration  
4: exceeds vibration level during stopping?  
5: decrease controlled gain  
6: determine as maximum gain  
A1: gain adjustment  
A2: increase controlled gain  
A3: gain adjustment  
A4: end

[Fig. 9]

A1: command  
A2: speed command  
A3: speed  
A4: torque  
A5: vibration level during running  
A6: time

[Fig. 10]

A1: gain  
A2: simulated disturbance torque  
A3: torque, speed, etc.  
A4: vibration detection level

A5: store limited gain (just before vibrates)

A6: time

[Fig.11]

1: detect vibration level of machine during normal running

2: add simulated disturbance torque

3: exceed vibration level

4: increase controlled gain

5: add simulated disturbance torque

6: exceeds vibration level

7: extraction of maximum gain,  
decrease controlled gain

8: store control system and maximum gain

9: executed all the control systems ?

10: change control system

11: select control system with increased gain

A1: extraction of maximum gain

A2: increase simulated disturbance torque

A3: adjustment of simulated disturbance torque and vibration level

A4: extract maximum gain

A5: extract optimum control system

A6: end

[Fig. 12]

61: operator

2: CPU

3: current amplifier

4 base drive circuit

A1: man

A2: command of position, speed, etc.

A3: (sequence processing)

[Fig. 13]

1: move in movable range

2: increase

3: observe vibration → increase gain slightly if  
vibration occurs

4: fast move in movable range

5: confirm positioning in at normal speed

A1: exemplary sequence

[Fig. 14]

A1: gain

A2: torque, speed, etc

A3: time

[Fig. 15]

2: CPU

3: current amplifier

4: base drive circuit

A1: command of position, speed, etc.

[Fig. 16]

(i)

A1: command

A2: speed command

A3: speed

A4: time

(ii)

A1: command

A2: speed command

A3: speed

A4: time

A5: gain

[Fig. 17]

A1: command

A2: speed time

A3: speed

A4: time

A5: gain

図 1

Fig. 1

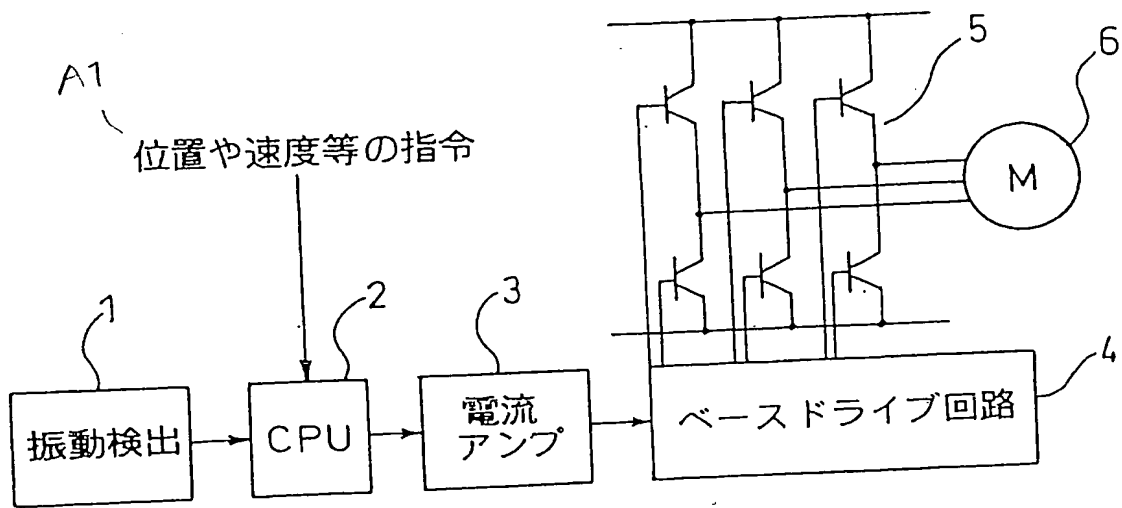


図 2

Fig. 2

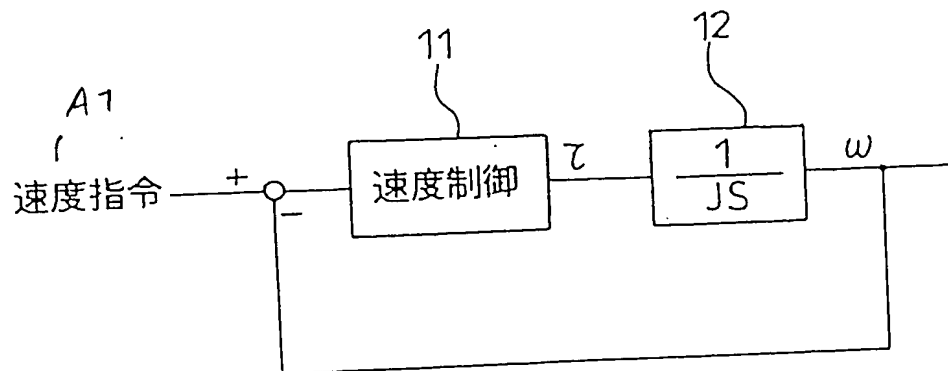


図 3

Fig. 3

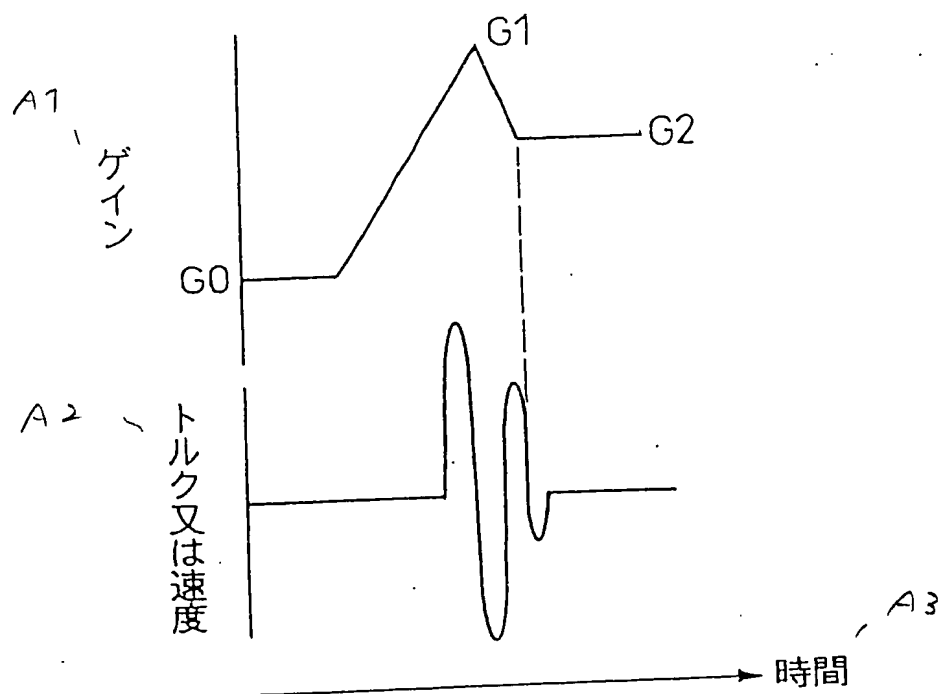


図 4

Fig. 4

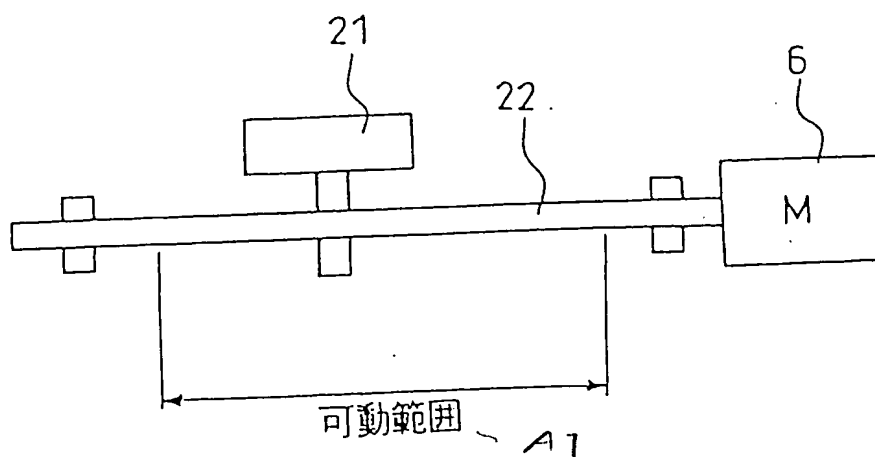




Fig. 5

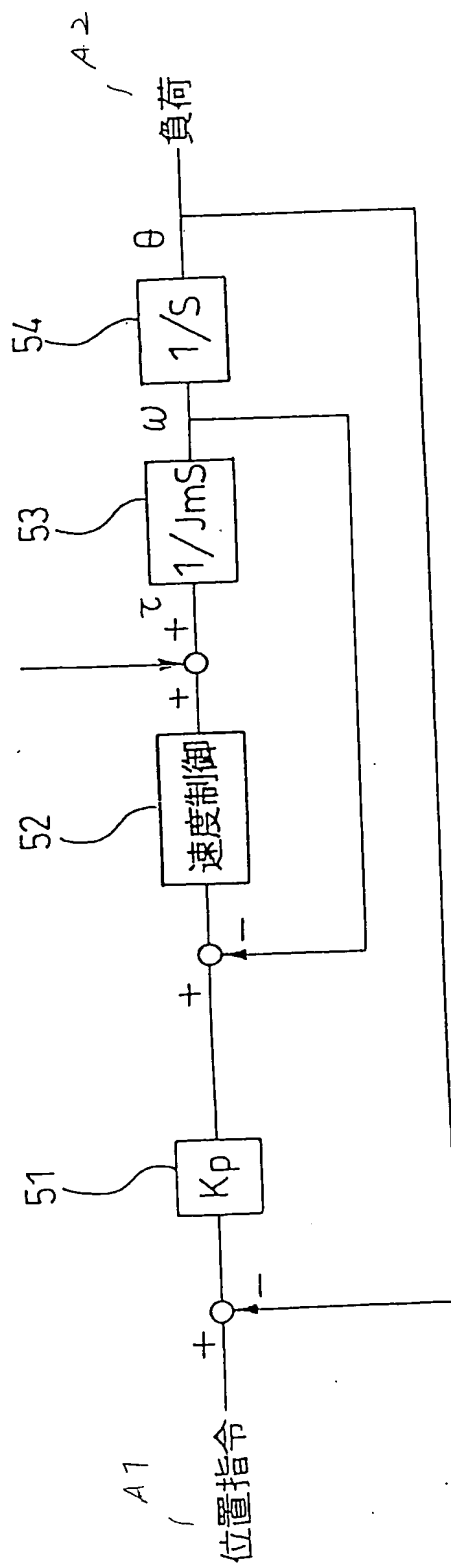
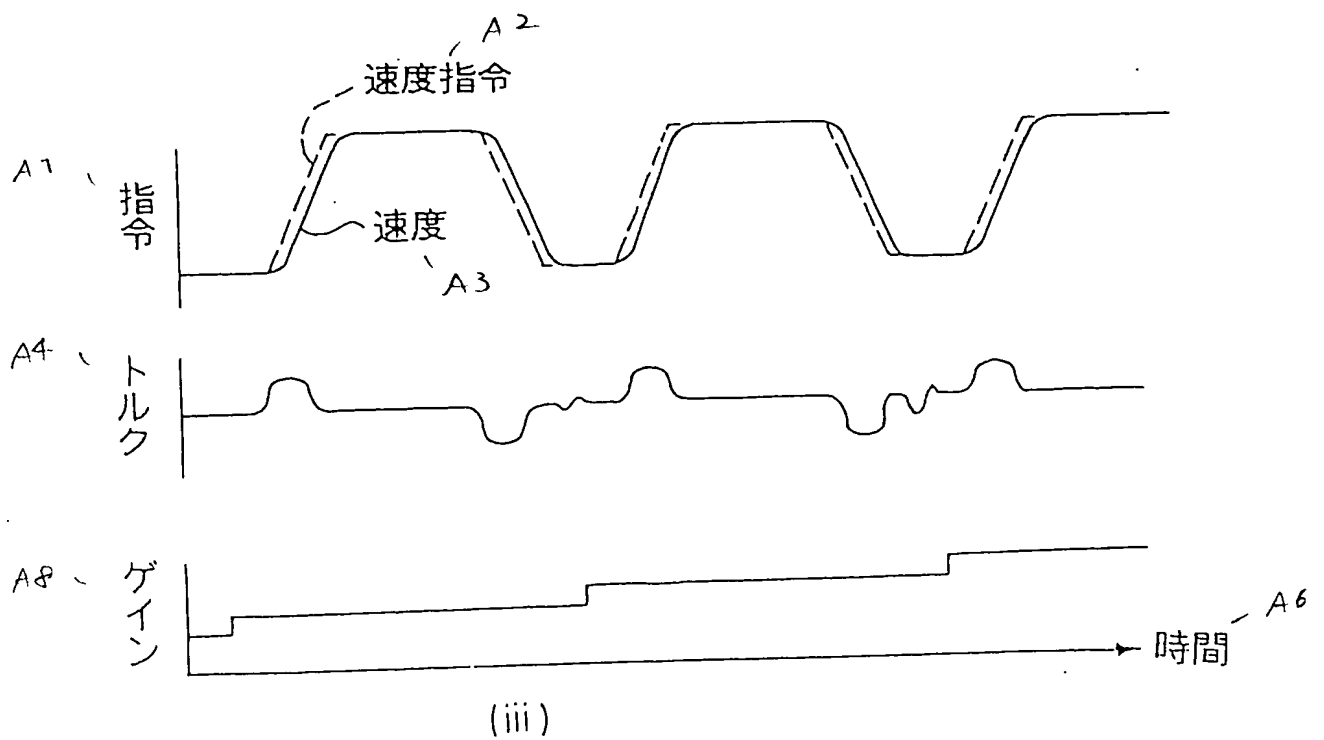
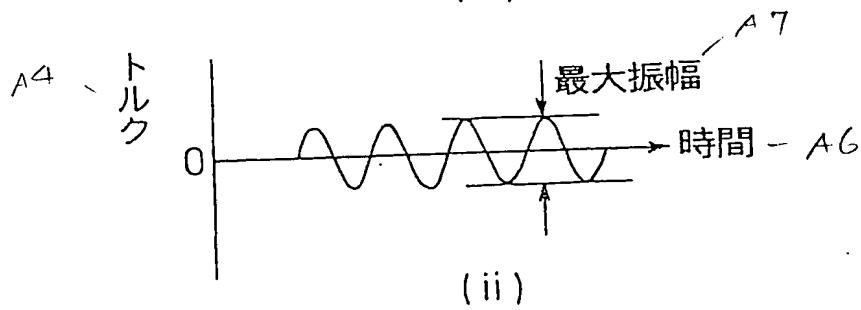
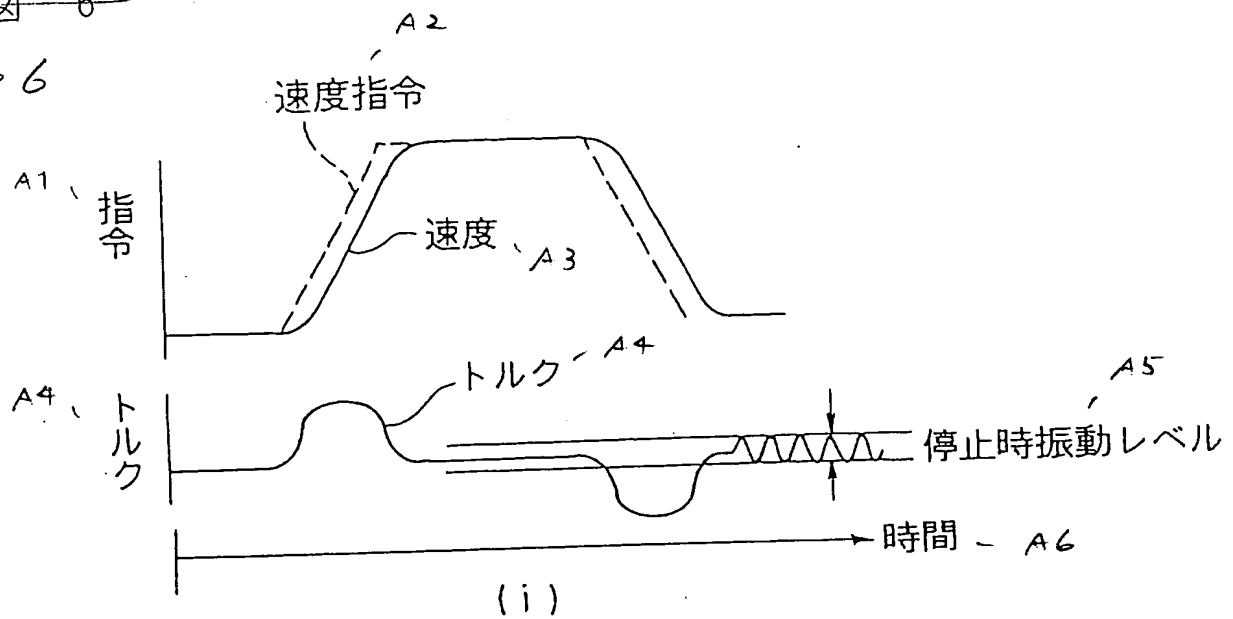


図 6

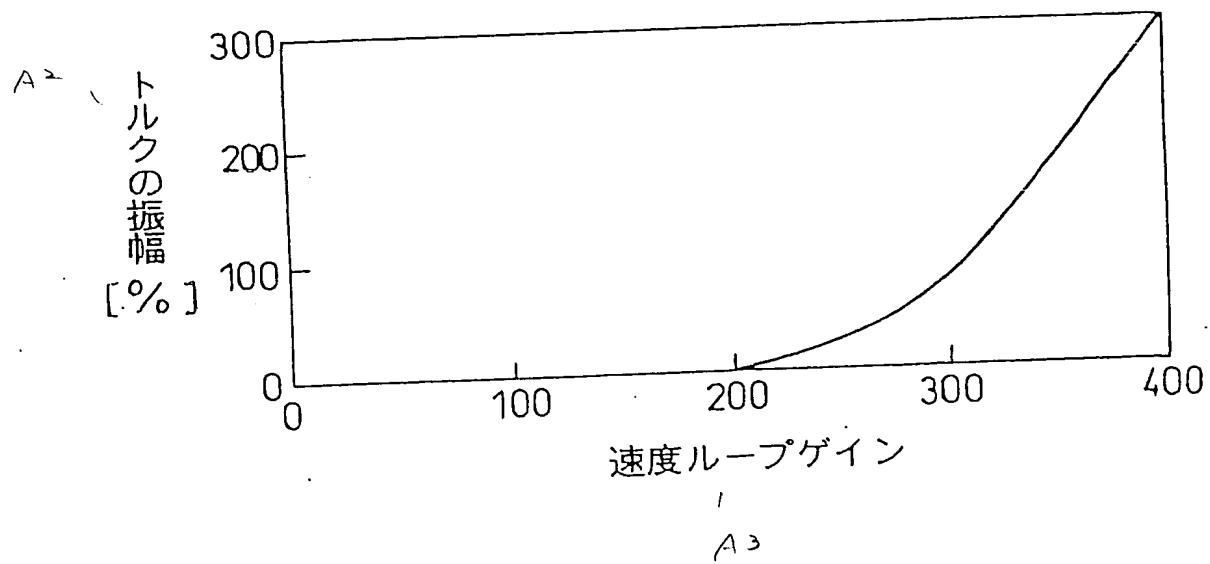
Fig. 6



7

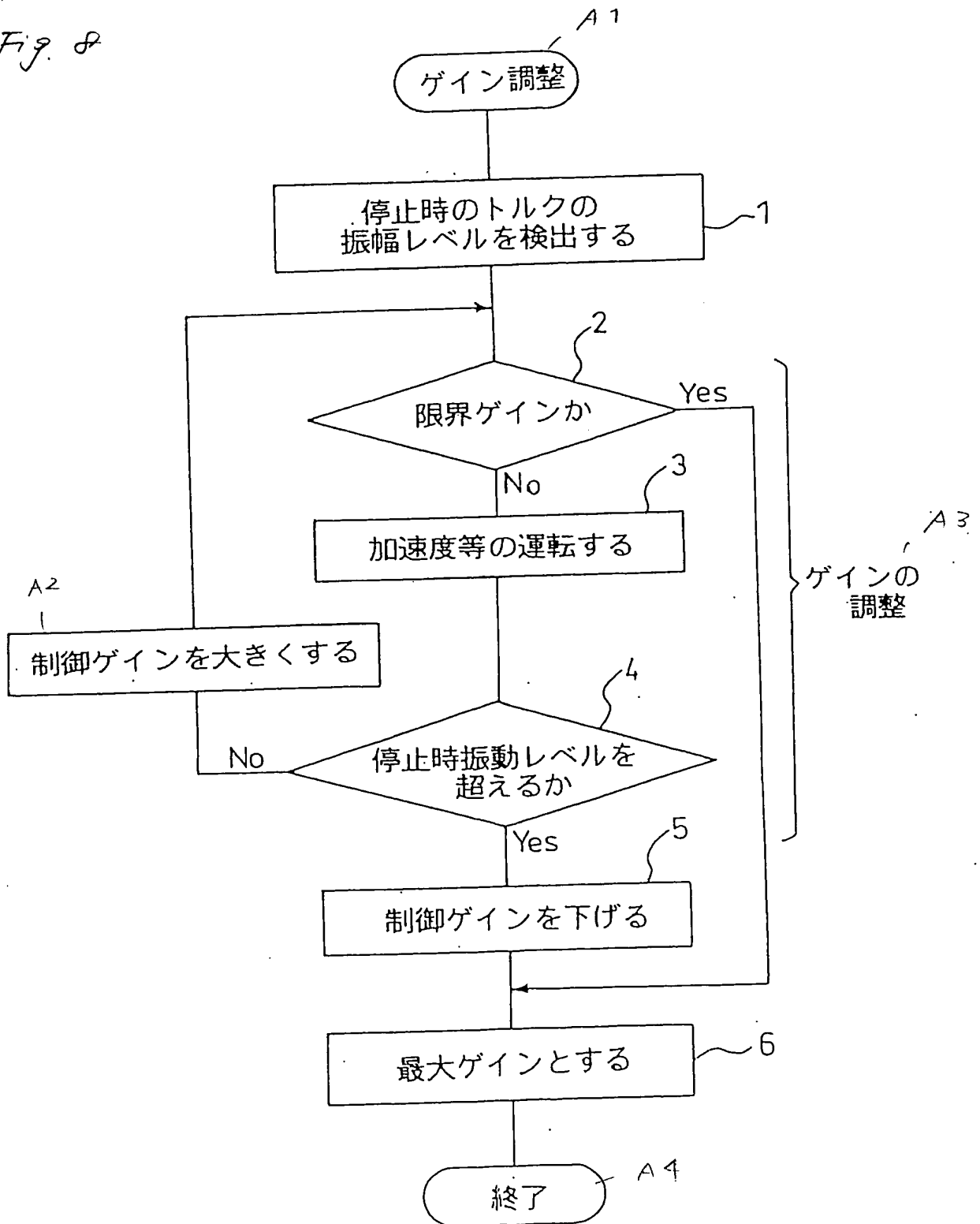
Fig. 7

$JL = 0$  停止時振動



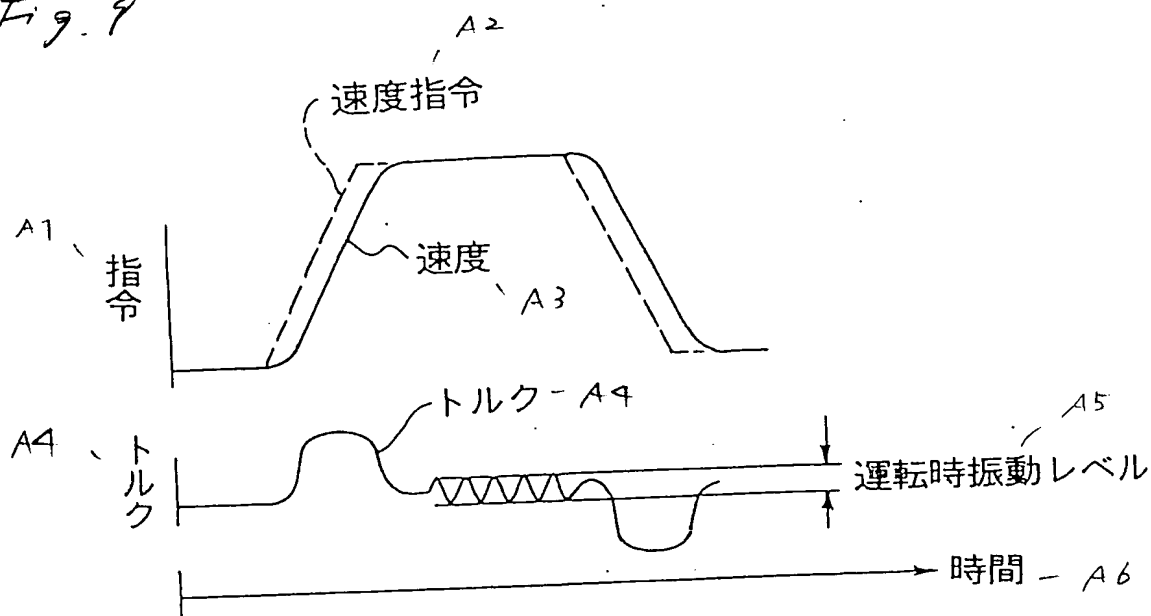
8

Fig. 8



~~図9~~

Fig. 9



~~図10~~

Fig. 10

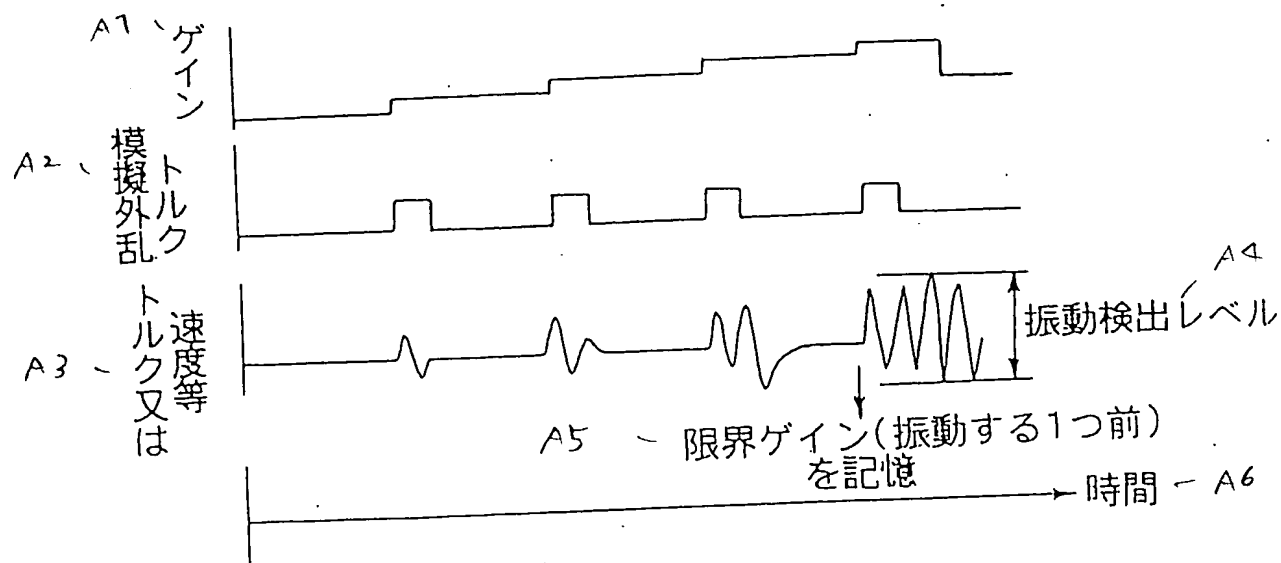
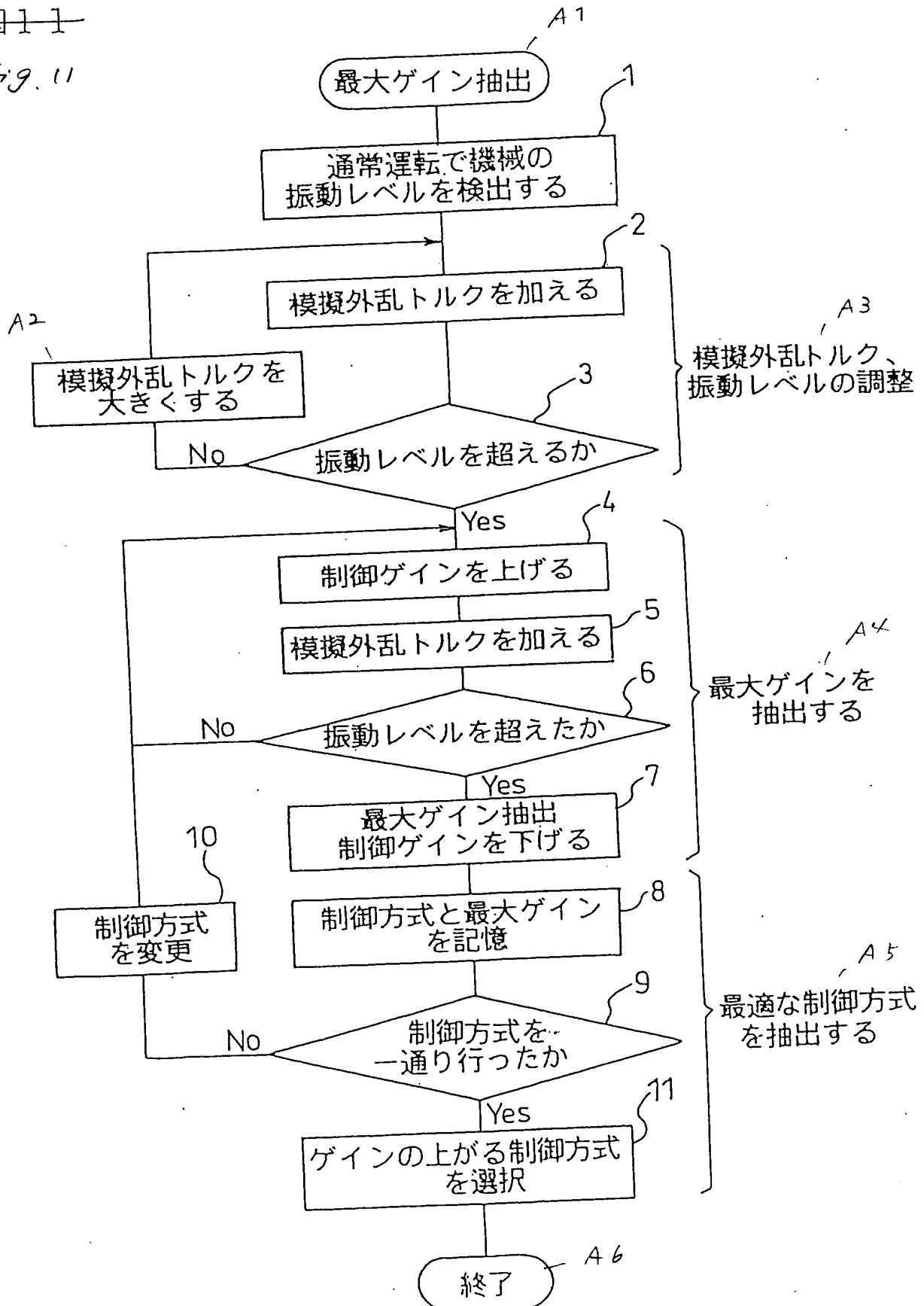


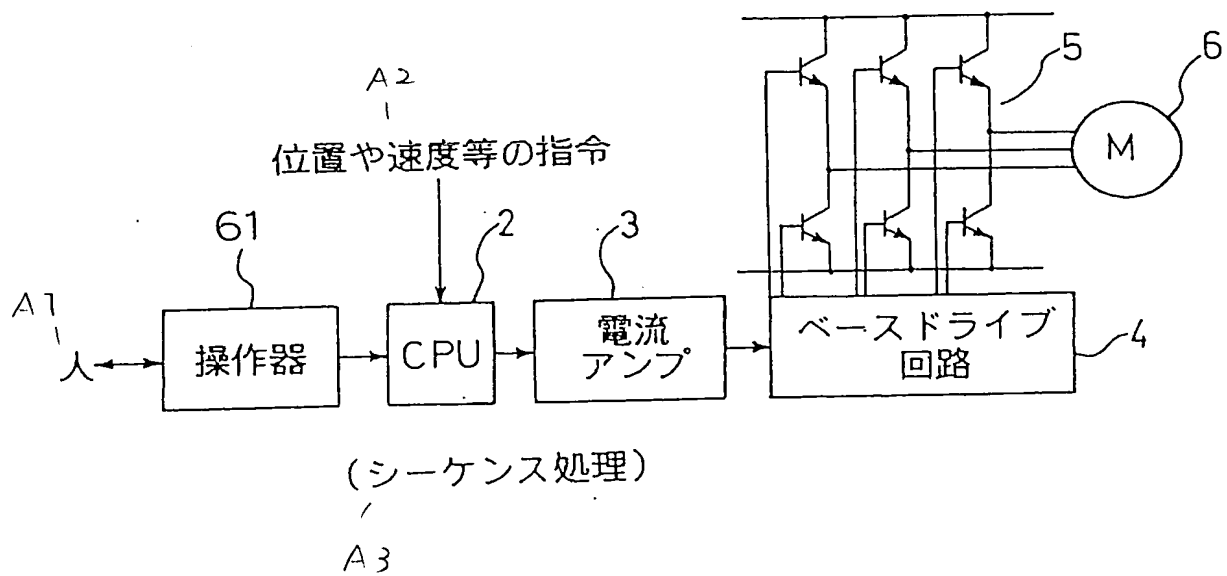
図11

Fig. 11



~~図 12~~

Fig. 12



—~~図13~~—

Fig. 13

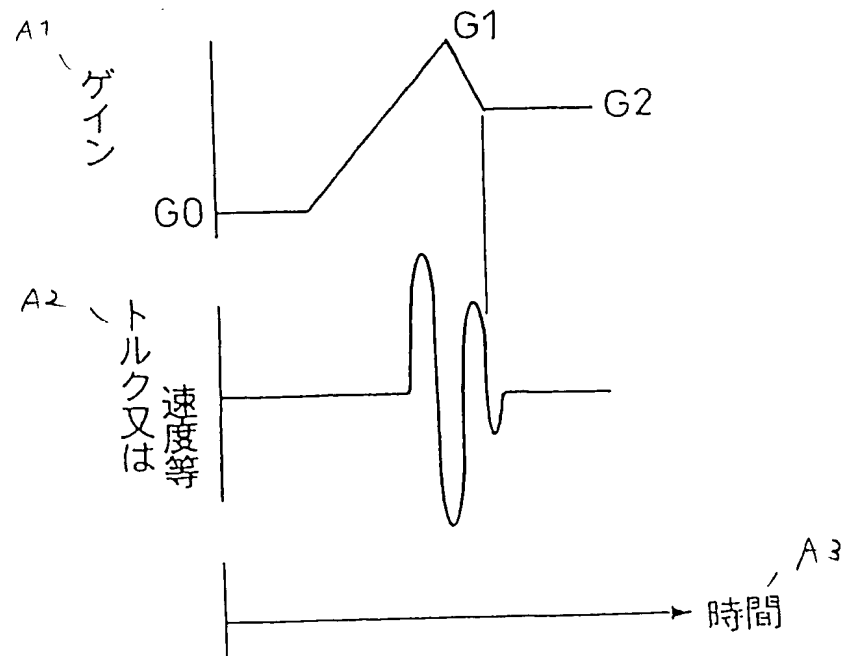
A1

シーケンス例

1. 可動範囲を移動する。
2. ゲインを上げる。
3. 振動を観測する。 → 振動したら少しゲインを下げる。
4. 可動範囲を早送りする。
5. 通常で速度で位置決めを確認する。
- 6.

—~~図14~~—

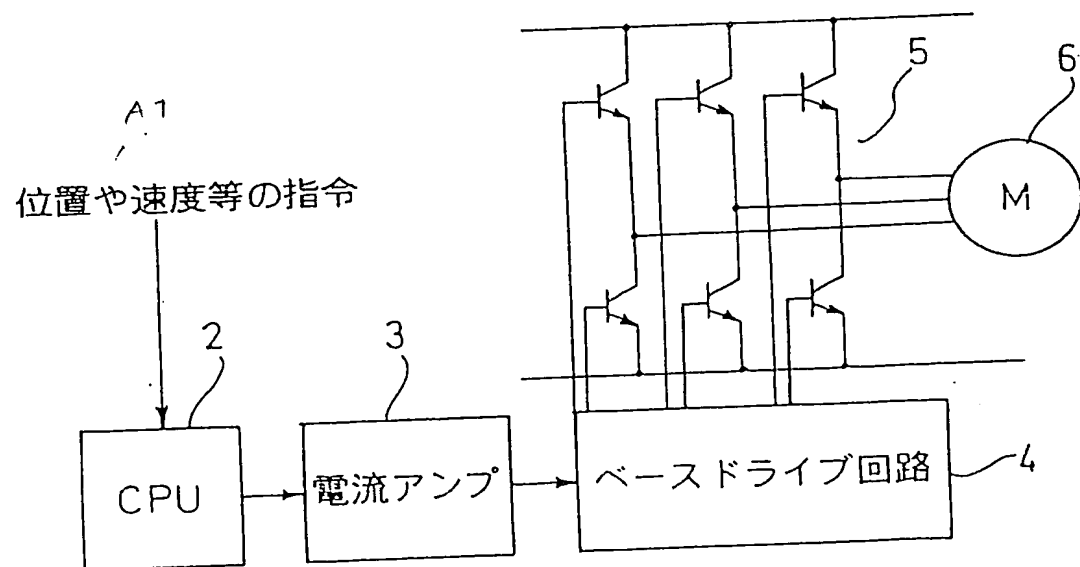
Fig. 14





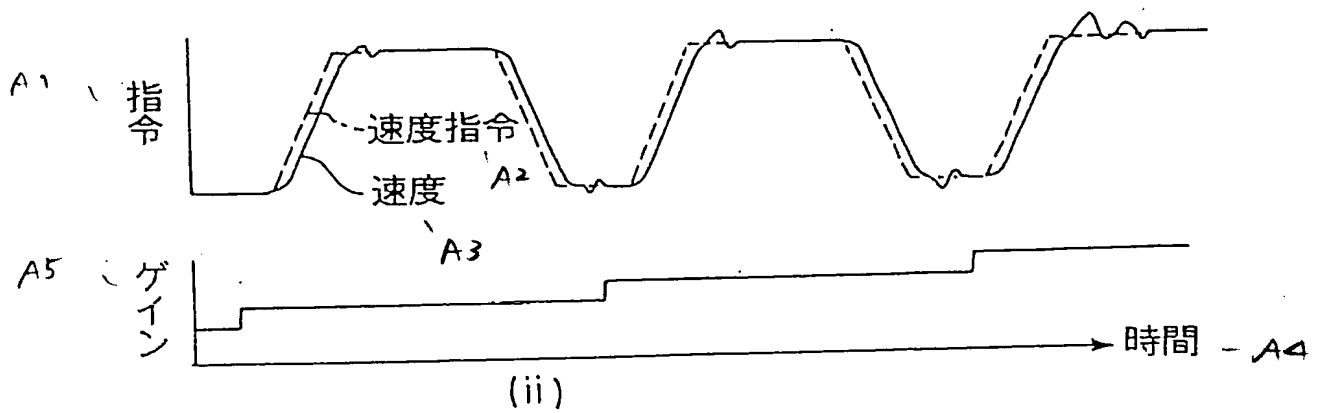
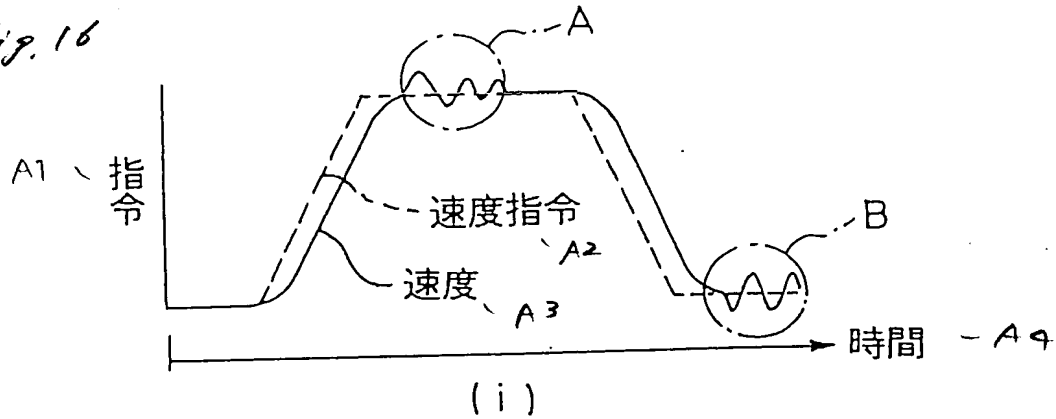
~~図15~~

Fig. 15



~~図16~~

Fig. 16



~~図17~~

Fig. 17

